AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-45 (Cancelled)

46. (New)   A control method for a gas turbine comprising:

controlling opening of at least one fuel valve to maintain a temperature (Tfire) of gas at an inlet of the gas turbine and a fuel-air ratio (F/A) within predetermined limits by:

calculating a set point exhaust temperature (TX) as a sum of a reference temperature (TXbase) and a plurality of correction values each of which are associated with a different operating parameter.

47. (New)   The control method of claim 46, wherein said corrections are calculated by computer simulations of the gas turbine, the simulations being conducted by specifying attainment of one of: a maximum of the temperature (Tfire) and a maximum of the fuel-air ratio (F/A), for each condition differing from the reference condition.

48. (New)   The control method of claim 46, wherein said plurality of correction values includes four corrections values and wherein said step of calculating further comprises calculating:

$$TX = TXbase + DeltaTX\_Dpin + DeltaTX\_Dpout + DeltaTX\_Hum + DeltaTX\_PCNLP$$

where:

DeltaTX_Dpin is a correction value for the set point exhaust temperature (TX) associated with a variation of pressure drops in intake pipes with respect to a nominal value of 0 mmH2O,

DeltaTX_Dpout is a correction value for the set point exhaust temperature (TX) associated with a variation of pressure drops in exhaust pipes with respect to a nominal value of 0 mmH2O,

DeltaTX_Hum is a correction value for the set point exhaust temperature (TX) associated with a variation of a relative humidity of air with respect to a nominal value of 60%, and

DeltaTX_PCNLP is a correction value for the set point exhaust temperature (TX) associated with a variation of a speed of a low pressure shaft with respect to a nominal value of 100%.

49. (New) The control method of claim 48, wherein a maximum exhaust temperature curve is generated for each of a plurality of speeds associated with said gas turbine.

50. (New) The control method of claim 49, wherein said reference temperature

(TXbase) is a reference temperature associated with one of said plurality of speeds

associated with said gas turbine (Txbase(PCNLP)).

51. (New) The control method of claim 50, wherein there are two values of

TXbase(PCNLP), a first value related to a curve of maximum temperature (Tflre) and a

second value related to a curve of maximum increase of temperature (Trise) of the gas

in a combustion chamber of the gas turbine.

52. (New) The control method of claim 51, further comprising calculating said first value

as:

TXmaxTflre =TxbasemaxTfire(PCNLP,PR)+ DeltaTX_DPin + DeltaTX_Dpout +

DeltaTX_Hum,

and calculating said second value as:

TXmaxTrise= TxbasemaxTrise(PCNLP,PR) + DeltaTX_DPin + DeltaTX_Dpout +

DeltaTX_Hum,

where PR indicates values having a dependence on a compression ratio (PR).

53. (New) The control method of claim 52, further comprising the step of:

        providing said temperature curves TXbasemaxTfire and TXbasemaxTrise as two-

dimensional tables, with the compression ratio (PR) and the gas turbine speed (PCNLP)

as independent variables.

54. (New) The control method of claim 52, wherein a maximum temperature TX, as a function of the compression ratio PR which enables a maximum Tfire to be attained, is a set of curves, each curve associated with a specific value of speed PCNLP, each successive curve generally having an increasingly negative slope as speed increases, and decreasing with a rise in compression ratio PR.

55. (New) The control method of claim 52, wherein a maximum temperature TX, as a function of the compression ratio PR which enables the maximum Trise to be attained, is a set of curves, each curve associated with a specific value of speed PCNLP, each successive curve generally having an increasingly negative slope as speed increases, and decreasing with a rise in the compression ratio PR.

56. (New) The control method of claim 48, wherein the correction value DeltaTX_Hum depends on a specific humidity (SH) and is expressed as a function of a difference (DeltaSH), which difference (SH) is defined as a difference between a current specific humidity and a specific humidity (SH_60%RH) at a relative humidity RH of 60%.

57. (New) The control method of claim 56, wherein there is a linear correlation between the correction value DeltaTX_Hum and the difference DeltaSH.

58. (New) The control method of claim 57, further comprising the step of:

determining the specific humidity at a relative humidity of 60% (SH_60%RH) as a

function of atmospheric temperature by interpolating the following values, where the

temperature is expressed in degrees Rankine:

SH_60%RH	(T=419.67)	= 0.000070
SH_60%RH	(T=428.67)	= 0.000116
SH_60%RH	(T=437.67)	= 0.000188
SH_60%RH	(T=446.67)	= 0.000299
SH_60%RH	(T=455.67)	= 0.000464
SH_60%RH	(T=464.67)	= 0.000707
SH_60%RH	(T=473.67)	= 0.001059
SH_60%RH	(T=482.67)	= 0.001560
SH_60%RH	(T=491.67)	= 0.002263
SH_60%RH	(T=500.67)	= 0.003324
SH_60%RH	(T=509.67)	= 0.004657
SH_60%RH	(T=518.67)	= 0.006367
SH_60%RH	(T=527.67)	= 0.008670
SH_60%RH	(T=536.67)	= 0.011790
SH_60%RH	(T=545.67)	= 0.015966

SH_60%RH	(T=554.67)	= 0.021456
SH_60%RH	(T=563.67)	= 0.028552
SH_60%RH	(T=572.67)	= 0.037585
SH_60%RH	(T=581.67)	= 0.048949

59. (New) The control method of claim 48, wherein the correction value DeltaTX_Dpout is expressed directly as a function of a measured pressure drop (DPout).

60. (New) The control method of claim 59, wherein there is a linear correlation between the correction value DeltaTX_Dpout and the measured pressure drop (Dpout).

61. (New) A control method for a gas turbine comprising:

controlling opening of a vent valve to maintain a temperature rise (Trise) of gas in a combustion chamber of the gas turbine within predetermined limits using values of an exhaust temperature (TX) as a function of a compression ratio (PR), which values have been obtained for a plurality of operating conditions of the gas turbine.

62. (New) The control method of claim 61, wherein said values are associated with a control function that is defined for each of a plurality of values of atmospheric temperature.

63. (New) The control method of claim 62, wherein said control functions represent a

relationship between the exhaust temperature (TX) for partial loads at a given speed of

a low pressure shaft of the gas turbine and the compression ratio PR, wherein each

control function is associated with a value of atmospheric temperature, each control

function generally having higher values as temperature rises and decreasing as the

compression ratio (PR) decreases.

64. (New) The control method of claim 61, wherein said values are associated with a

single control function without a dependence on atmospheric temperature.

65. (New) The control method of claim 64, further comprising the step of:

calculating a transformation associated with the single control function as:

$$TTX = TX (518.67/TCD)^x$$

where:

TX is an actual exhaust temperature;

518.67 is a reference temperature;

TCD is an exhaust temperature of a compressor, expressed in a unit of

measurement compatible with that of the reference temperature;

x is a nondimensional exponent calculated in such a way as to minimize a mean

quadratic deviation between values of TTX and the single control function; and

TTX is a transformed exhaust temperature.

66. (New) The control method of claim 65, further comprising:

determining a set point associated with said controlling step based on inverse of the transformation for a known compression ratio (PR).

67. (New) The control method of claim 66, further comprising:

calculating the exhaust temperature (TX) as a linear approximation of a sum of the reference temperature (Txbase) plus correction values associated with an environmental or operating parameter.

68. (New) The control method of claim 67, wherein there are four of the correction values such that the exhaust temperature (TX) is expressed as:

$TX = TXbase + DeltaTX\_DPin + DeltaTX\_Dpout + DeltaTX\_Hum + DeltaTX\_PCNLP$

where:

TXbase is determined by inverting the transformation thus: $TXbase = TTX/((518.67/TCD)^x)$;

DeltaTX_Dpin is a correction value for the exhaust temperature (TX) associated with a variation of pressure drops in intake pipes with respect to a nominal value of 0 mm H20;

DeltaTX_Dpout is a correction value for the exhaust temperature (TX) associated with a variation of pressure drops in exhaust pipes with respect to a nominal value of 0 mm H2O;

DeltaTX_Hum is a correction value for the exhaust temperature (TX) associated with a

variation of relative humidity of air with respect to a nominal value of 60%; and

DeltaTX_PCNLP is a correction value for the exhaust temperature (TX) due to a

variation of a low pressure shaft speed with respect to a nominal value of 100%.

69. (New) The control method of claim 68, wherein a set of functions, one for each

value of speed (PCNLP), is expressed in terms of the maximum temperature (TX) as a

function of the compression ratio (PR).

70. (New) The control method of claim 69, further comprising:

evaluating a current exhaust temperature (TX) by calculating:

$$TX = TXbase(PCNLP) + DeltaTX\_DPin + DeltaTX\_Dpout + DeltaTX\_RH$$

where TXbase(PCNLP) is a reference temperature associated with a speed of the gas

turbine.

71. (New) The control method of one of claims 66 and 70, wherein the exponent X is a

function of a speed of a low pressure wheel of the gas turbine.

72. (New) The control method of claim 71, wherein the exponent X, for intermediate

speeds (PCNLP), is calculated by interpolation of values of X which have been

calculated at other speeds (PCNLP) as follows:

if PCNLP = 105%, X = 0.323;

if PCNLP = 100%, X = 0.33225;

if PCNLP = 90%, X = 0.34;

if PCNLP = 80%, X = 0.34425;

if PCNLP = 70%, X = 0.351;

if PCNLP = 60%, X = 0.348; or

if PCNLP = 50%, X = 0.3505.

73. (New) The control method of claim 70, wherein the correction value DeltaTX_RH is calculated based on three ambient temperatures, three levels of relative humidity, and load characteristics according to a cubic law.

74. (New) The control method of claim 73, wherein nine simulations are conducted, each associated with different F/A values, to determine a reference level, the current values of TX are then plotted as functions of PR, while a difference between the functions and base curves yields the correction value DeltaTX_RH, as expressed in the formula:

DeltaTX_RH = TX - TXbase.

75. (New)   The control method of claim 74, wherein said values of the correction value

DeltaTX_RH are plotted as a function of a difference (DeltaSH) between a current value

of specific humidity (SH_current) and a specific humidity at a relative humidity of 60%

(SH_60%RH) such that:

DeltaSH = SH_current - SH_60%RH.

76. (New) The control method of claim 75, wherein the function comprises two straight

lines rising with an increase in the difference DeltaSH, of which a first one of said

straight lines is valid when DeltaSH is less than 0 and has a greater slope than a

second one of said straight lines which is valid when DeltaSH is greater than 0, the two

straight lines passing through a point near an origin of the function's axes.

77. (New) The control method of claim 68, wherein the correction value DeltaTX_Dpin

is a function of a measured pressure drop (DPin).

78. (New)   The control method of claim 77, further comprising the step of:

determining said correction value DeltaTX_Dpin taking into account three

ambient temperatures, three pressure drops in the intake and load characteristics

according to a cubic law.

79. (New) The control method of claim 78, wherein nine simulations are conducted,

each associated with different F/A values, to reach a reference level, the current values

of TX are then plotted as functions of PR, while a difference between the functions and

base curves yields the correction value DeltaTX_Dpin, as expressed in the formula:

DeltaTX_Dpin = TX - TXbase.

80. (New) The control method of claim 79, wherein said correction values

DeltaTX_Dpin are linearly correlated with the measured pressure drop Dpin such that

the correction values of DeltaTX_Dpin increase with a rise in the measured pressure

drop Dpin.

81. (New) The control method of claim 68, wherein the correction value DeltaTX_Dpout

is a function of the measured pressure drop DPout.

82. (New) The control method of claim 81, further comprising:

determining said correction value DeltaTX_Dpout taking into account three ambient

temperatures, three pressure drops in the exhaust and load characteristics according to a

cubic law.

83. (New) The control method of claim 82, wherein nine simulations are conducted,

each associated with different F/A values, to reach a reference level, the current values

of TX are then plotted as functions of PR, while a difference between the functions and

base curves yields the correction value DeltaTX_Dpout, as expressed in the formula:

DeltaTX_Dpout = TX - TXbase.

84. (New) The control method of claim 83, wherein the correction values

DeltaTX_Dpout are linearly correlated with the exhaust pressure Dpout, such that the

correction values DeltaTX_Dpout increase with a rise in the exhaust pressure Dpout.

85. (New) The control method of claims 76, 80 and 84, wherein a correlation for

calculating the maximum exhaust temperature TX is:

$$TX = TTX(PCNLP, PR) / ((518.67/TCD)^{x(PCNLP)} + DeltaTX\_RH (DeltaSH) +$$

DeltaTX_Dpin (Dpin) + DeltaTX_Dpout (Dpout).

86. (New)   The control method of claim 46 or 61, wherein said control method is used

to control a two-shaft gas turbine and further comprising the step of:

providing said two-shaft gas turbine with a dry nitrogen oxide (NOx) reduction

system.

87. (New) A control method for a gas turbine comprising:

controlling opening of at least one fuel valve to maintain a temperature (Tfire) of gas at an inlet of the gas turbine and a fuel-air ratio (F/A) within predetermined limits by:

calculating a set point exhaust temperature (TX) as a sum of a reference temperature (TXbase) and a plurality of correction values each of which are associated with a different operating parameter;

wherein said plurality of correction values includes four corrections values and wherein said step of calculating further comprises calculating:

$$TX = TXbase + DeltaTX\_Dpin + DeltaTX\_Dpout + DeltaTX\_Hum + DeltaTX\_PCNLP$$

where:

DeltaTX_Dpin is a correction value for the set point exhaust temperature (TX) associated with a variation of pressure drops in intake pipes with respect to a nominal value of 0 mmH2O,

DeltaTX_Dpout is a correction value for the set point exhaust temperature (TX) associated with a variation of pressure drops in exhaust pipes with respect to a nominal value of 0 mmH2O,

DeltaTX_Hum is a correction value for the set point exhaust temperature (TX) associated with a variation of a relative humidity of air with respect to a nominal value of 60%, and

DeltaTX_PCNLP is a correction value for the set point exhaust temperature (TX) associated with a variation of a speed of a low pressure shaft with respect to a nominal

value of 100%; and

controlling opening of a vent valve to maintain a temperature rise (Trise) of gas in a combustion chamber of the gas turbine within predetermined limits using values of an exhaust temperature (TX) as a function of a compression ratio (PR), which values have been obtained for a plurality of operating conditions of the gas turbine.